

Low-Cost High-Performance Non-Toxic Self-Pressurizing Storable Liquid Bi-Propellant Pressure-Fed Rocket Engine, Phase I

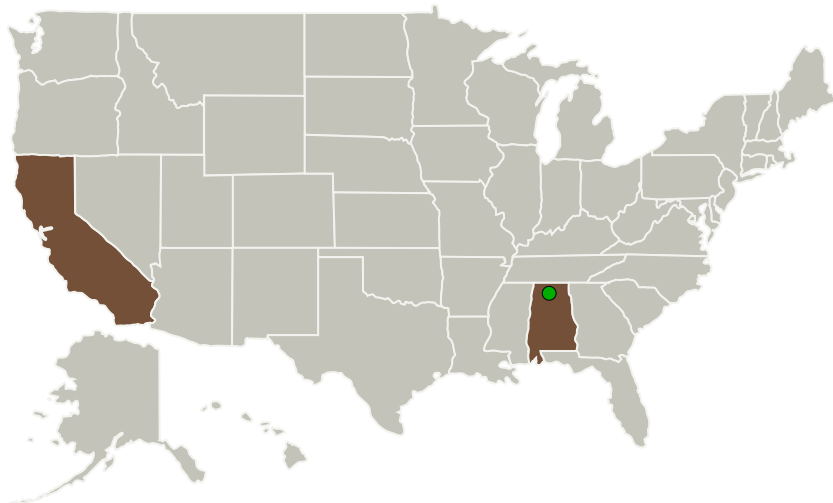
Completed Technology Project (2014 - 2014)




Project Introduction

Exquadrum proposes a high-performance liquid bi-propellant rocket engine that uses propellants that are non-toxic, self-pressurizing, and low cost. The proposed engine and propellants provide the same performance as state-of-the-art storable propellants. The propellants are storable for long durations without decomposition or degradation. Because the propellants are self-pressurizing, they offer the potential for overall system weight savings by eliminating the pressurization system. In Phase I, Exquadrum will develop this engine concept through trade studies and analyses and conclude with a proof-of-concept hot fire demonstration of a full-scale laboratory engine. In Phase II, Exquadrum will mature the engine design to detail design, and deliver a full-scale engine to NASA for functional and environmental testing under simulated mission conditions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Exquadrum, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Adelanto, California
 Marshall Space Flight Center (MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



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Primary U.S. Work Locations

Alabama

California

Project Transitions



June 2014: Project Start

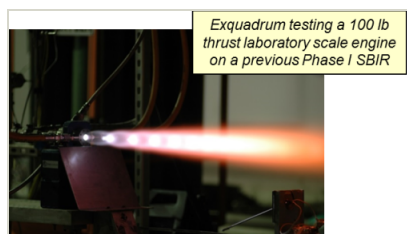


December 2014: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137485>)

Images



Exquadrum testing a 100 lb thrust laboratory scale engine on a previous Phase I SBIR

Briefing Chart

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(<https://techport.nasa.gov/image/134112>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Exquadrum, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

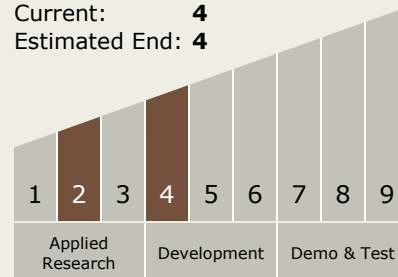
Carlos Torrez

Principal Investigator:

Philip Pelfrey

Technology Maturity (TRL)

Start: 2
Current: 4
Estimated End: 4



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Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.1 Chemical Space Propulsion
 - └ TX01.1.2 Earth Storable

Target Destinations

The Sun, Earth, The Moon,
Mars, Others Inside the Solar
System, Outside the Solar
System